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ABSTRACT

This literature review on educational alternatives for children with attention deficit hyperactivity disorder (ADHD) reports that only 17 citations were found that specifically addressed teacher training, program efficacy, or management of ADHD children. One was a teacher training program developed as a dissertation project, seven were research reports on the efficacy of specific educational treatment programs or instructional methods for students with ADHD, and the remaining nine books or articles were commercial publications of prescriptive classroom modifications and instructional techniques for this population. Each publication was evaluated in terms of teacher time requirements for inservice training, program/strategy implementation, and record keeping. Just one publication reviewed presented an approach judged to be appropriate with respect to time requirements (less than 15 hours inservice training, less than 60 minutes total implementation, and less than 60 minutes paperwork daily). The research reports did not report replication data and the publications presenting prescriptive techniques did not include validity and reliability support for the efficacy of the interventions. (60 references) (DB)

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Educational Alternatives for Children With Attention Deficit-Hyperactivity Disorder

A paper presented to the
Council for Exceptional Children
Task Force on
Children with Attention Deficit Disorder

by
Mary Jo Poillion

November 10, 1991

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Abstract

A comprehensive search for literature relating to educational alternatives for children diagnosed with an Attention Deficit-Hyperactivity Disorder (ADHD) resulted in the location of just 17 publications. One publication was a teacher training program developed as a dissertation project. Seven articles reported results of research focusing on the efficacy of a specific educational treatment program or instructional method for students with ADHD. The remaining nine books or articles reviewed were commercial publications of prescriptive classroom modifications and instructional techniques to be implemented for children with ADHD.

Each book or article was evaluated in terms of teacher time requirements for inservice training, program/strategy implementation, and record-keeping. Only one publication reviewed was considered by classroom teachers to be appropriate with respect to time requirements for the three areas assessed (less than 15 hours inservice training, less than 60 minutes total implementation, and less than 60 minutes paperwork daily).

Replication of the teacher training program and seven research projects in a general or special education classroom was not reported. Not one of the nine publications presenting prescriptive techniques to assist children with ADHD included validity and reliability support for the efficacy of their proposed modifications. Implications of these results for classroom teachers are discussed.

Introduction

Literature focusing on hyperactivity consistently reported that a significant percentage of school-aged children were afflicted with what is currently considered an Attention Deficit-Hyperactivity Disorder (ADHD). In the sixties, the incidence of hyperactivity was found to be 10-20% of elementary school population (Huessy, 1967). Lambert, Sandoval and Sassone (1978) reported prevalence figures of 12-13%. Today hyperactivity accounts for at least half of all referrals to child mental health clinics (Ross & Ross, 1982 and Ingersoll, 1988). Prevalence figures are still estimated from 10-20% of the school-age population (Shaywitz & Shaywitz, 1989).

Children who exhibit hyperactive behaviors were previously described with the labels minimal brain injury (MBI), Minimal Brain Dysfunction (MBD), hyperkinesis, learning disability, specific developmental disorder, and maturational lag (Wender, 1987; Jordan, 1988; and Lavin, 1989). Labels cited in the literature published during the 1980s include hyperactivity (Cohen & Minde, 1983 and Cruickshank, 1985), attention deficit disorder (Friedman & Doyal, 1987; Conners, 1987; Hunsucker, 1988; and Sergeant & van der Meere, 1988), specific learning disability (Silver, 1984), attention deficit disorder/hyperkinetic syndrome (ADDH, Roberts, 1987; Hunt,

Cohen, Anderson, & Minderaa, 1988; and Taylor, 1989), and attention-deficit hyperactivity disorder (Ingersoll, 1988; Barkley, 1989; and Klein & Mannuzza, 1989). Currently the terminology recommended by the American Psychiatric Association (1987) for diagnosing these children is Attention-Deficit-Hyperactivity Disorder (ADHD). Children previously diagnosed using the labels referenced above have been subsumed under the ADHD label. ADHD is, therefore, the term used to describe children with hyperactivity throughout this examination.

Results of longitudinal studies focusing on children with hyperactivity report that almost one third of the children diagnosed with ADHD do not outgrow their childhood symptoms (Gittleman, Mannuzza, Shenker, & Bonagura, 1985; Hunsucker, 1988; and Wender, Reimherr, Wood, & Ward, 1985). Many children with hyperactivity, even those treated with stimulant drugs, continue to have problems with restlessness, impulsivity, immaturity, and concentration (Garfield & Klee, 1985 and Hechtman, Weiss, Perlman, Hopkins, & Wener, 1981). Outcome studies report that academically, grade point averages of adolescents with hyperactivity were significantly lower than their non-hyperactive peers (Garfield & Klee, 1985 and Howell & Huessy, 1981). Up to 26% of students with ADHD were found to repeat one or more grades (Howell & Huessy, 1981 and Mannuzza, Klein, Bonagura, Konig, & Shenker, 1988). Up to 30%

of adolescents with hyperactivity did not complete high school and few attempted any education beyond high school (Howell & Huessy, 1981; Lambert, 1987; and Weiss, Hechtman, Milroy, & Perlman, 1985). Lambert (1987) reported that of those students exhibiting hyperactivity who did not complete high school, 69% had been assigned to special schools.

Thirty years of documentation have both verified the incidence of hyperactivity and identified the significant impairment throughout the lifespan of individuals afflicted with this disorder. Yet to date, few school districts have implemented program alternatives specifically designed for ADHD students (Barkley, 1990). Campbell and Cohen (1990) surveyed the directors of special education in the United States to determine whether educational services are available to ADHD children. Results indicated the ADHD diagnosis qualified a child for services in only 1 out of 51 departments of special education surveyed. The authors concluded that in most areas of the United States, special educational services for ADHD students are not available (page 191). The time has come to evaluate the status of educational programming for ADHD children.

Legal Status

Intense lobbying efforts by parent groups seeking federal support for their hyperactive child's educational programming

failed to influence federal legislators during the reauthorization of Public Law 94-142, the Education For All Handicapped Children Act (1975). Attention Deficit-Hyperactivity Disorder was not recognized as a handicapping condition for inclusion under the mandates of PL 94-142 for two reasons. Children diagnosed with ADHD are already eligible for special education services within the guidelines of PL 94-142 under the category of "other health impaired." Provisions for educational services are also made for ADHD children under section 504 of the Vocational Rehabilitation Act (1973). This ADHD eligibility for services within general and/or special education was recently clarified in a memorandum to chief state school officers by the United States Department of Education (Davila, Williams & MacDonald, 1991). ADHD (and Attention Deficit Disorder, ADD) was recognized as a condition which results in significant learning problems for some children. Responsibility of state and local education agencies to address the educational needs of ADHD children was clearly delineated by the memorandum.

Consensus of ADHD Identification Issues

Difficulty in obtaining a consensus on basic attributes of ADHD still exists (Shaywitz & Shaywitz, 1991). The continuing disagreement within groups and lack of precision on how to define ADHD remain problematic for researchers

(Fletcher, Morris & Francis, 1991) and those social defining groups of parents, teachers, physicians, and mental health workers charged with the daily diagnosis and treatment of this disorder (Goodman & Poillion, in press). The use of different diagnostic practices among medical and psychological clinicians, and the different approaches to very similar practices, demonstrate the absence of standardized diagnostic policies for identifying the ADHD syndrome (Taylor, 1989). A universally accepted measure of the ADHD concept is currently not available (Shekim, Kashani, Beck, Cantwell, Martin, Rosenberg, & Costello, 1985).

The opportunity to establish consensus regarding both an ADHD definition and the criteria by which to identify the disorder approaches with the revision of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R, American Psychiatric Association, APA, 1987). DSM-IV is targeted for completion in the year 1994. With the new criteria in place, sociopolitical pressures must be exercised to influence researchers, national authors, and daily practitioners to adhere to the new guidelines. It should be insisted that classification research conducted after the completion of the DSM-IV be related to criteria delineated by the APA. Otherwise, the results will have little credibility (Fletcher, Morris & Francis, 1991), and consensus on ADHD identification issues might never be attained.

Educational Alternatives

A variety of treatment options for these high-risk children has been investigated. Special education (Silver, 1986), cognitive behavioral training (Braswell & Kendall, 1988), multimodality treatment (Satterfield, Satterfield, & Schell, 1987 and Abikoff & Gittelman, 1985), and psychostimulant medication (Gittelman & Abikoff, 1985) target the ADHD child for intervention. Other strategies focus on parent training (Barkley, 1981) and teacher training (Lopez, 1984 and Zentall, 1985). The methodologies of these different approaches have failed, however, to provide for both generalization of treatment effects to other environments and maintenance of targeted behaviors over time (Barkley, 1989).

Concern for the educational status of children diagnosed with ADHD prompted the following literature review which responds to the question, "What forms of teacher support for instructional methods, appropriate materials, and practical behavioral management techniques for dealing with ADHD children in the classroom are available to school systems?" Review of existing treatment alternatives reported by the research community will provide assistance to teachers in their attempt to reduce the negative ADHD prognosis which continues to plague children possessing this disorder.

Review of ADHD Literature

Method

Search Criteria

A thorough examination through professional literature addressing ADHD was conducted to locate citations that describe educational alternatives for children diagnosed with the hyperactivity disorder. The inquiry began with computer searches of publications provided by the Council for Exceptional Children, ERIC Clearinghouse on Handicapped and Gifted Children, 1991 and the Silver Platter Psychological Abstracts, PsychLit, 1990.

All titles and abstracts with the search words hyperkinesis, attention deficit hyperactivity disorder, teacher training, education, classroom management were examined. One limiting variable was defined to narrow the search. Only literature published after 1980 was included in this review. Research published prior to 1980 focused on the remediation of processing deficits within the hyperactive child. Recent studies identify more salient areas of ADHD impairment such as poor impulse control (Kendall, Padawer, Zupan, & Braswell, 1985), motivational deficits (Barkley, 1989), temperamental predisposition (Lambert & Hartsough, 1984), and environmental manipulation (Cruikshank, 1985 and Zentall, 1985). The resulting 131 ERIC abstracts and 92 PsychLit abstracts were screened for the purposes of narrowing

the search to those articles which specifically addressed teacher training, program efficacy, or management of ADHD children.

The ADHD Warehouse and the Current Index of Educational Journals (1980-1991) were also sources from which an additional 39 articles and books were screened. A total of 262 pieces of literature were reviewed. Following is the resulting list of books and articles available for critique.

1 teacher training program

7 articles/books reporting the efficacy of a specific treatment within the classroom setting

9 modification/management techniques

Evaluation Procedures

Each book or article was evaluated in terms of the amount of time required of classroom teachers for training, implementation, and documentation of progress. The teaching staff of an elementary school was surveyed for their perception of the following time descriptors: **minimum, moderate, considerable, excessive.** This school was identified by the state of Oklahoma as possessing a student population at great risk for educational failure. Results of the time commitment estimated by participating teachers (n = 20) are reported in Table 1. The measure of central tendency applied

Table 1

Summary of Teacher Estimation of Time Requirements

For Implementation of ADHD Programs

(N = 20)

Time Descriptor	Range	Mode
Number of hours of inservice training you believe would involve the following descriptors.		
___ MINIMUM training required	1-4	1
___ MODERATE training required	1.5-72	2-5
___ CONSIDERABLE training required	2-20	10
___ EXCESSIVE training required	2hr-6mos	15
Number of minutes/hour you believe would involve the following descriptors of paperwork required for a specific intervention.		
___ MINIMUM record keeping involved	1-30	5
___ MODERATE record keeping involved	3-120	20
___ CONSIDERABLE record keeping involved	5-300	30
___ EXCESSIVE record keeping involved	15-2400	60
Number of minutes/hour you believe would involve the following descriptors of teaching time required for a specific intervention.		
___ MINIMUM time away from teaching	2-30	5
___ MODERATE time away from teaching	5-120	15
___ CONSIDERABLE time from teaching	6-300	30
___ EXCESSIVE time from teaching	7-2000	60

to define time descriptors was the mode. Following are graphics used to report the rating of each book or article reviewed.

MIN	MOD	CON	EXC
Minimum	**Moderate**	**Considerable**	**Excessive**

Results

This exhaustive search through ADHD literature resulted in the listing of 17 books or articles which specifically addressed the management of ADHD students in the classroom. The authors of these 17 publications, and the evaluation of their treatment procedures in terms of the time variable, are reported in Table 2.

Teacher Training Programs

Only one teacher training program for the management of hyperactive children was identified by the search. Lopez (1984) designed a six-week inservice program to increase teachers' awareness and expertise on hyperactivity and the management of these children in the classroom. Each session was three hours long. Total time for this inservice was 17 hours, slightly over what classroom teachers perceived to be "excessive." Time requirements for documentation and implementation of this intervention were addressed by this

Table 2

Ratings of Educational Alternatives Within the Classroom for ADHD Children in Terms of Time Requirements for Implementation

	Training[a]	Record Keeping[b]	Implementation[c]
Teacher Training			
Lopez (1984)	EXC	NA	NA
Program Efficacy			
Abikoff & Gittelman (1985)	MIN	NA	NA
Kendall et al. (1985)	NA	NA	NA
Kirby & Grimley (1986)	NA	NA	NA
Kneedler & Hallahan (1981)	MIN	MIN	MIN
Prater et al. (1991)	MIN	NA	MIN
Gordon et al. (1991)	NA	NA	NA
Rosen et al. (1984)	EXC	EXC	EXC

[a] in hours: MIN, MINIMUM = 1; MOD, MODERATE = 2; CON, CONSIDERABLE = 10; EXC, EXCESSIVE = 15

[b] minutes per hour: MIN, MINIMUM = 5; MOD, MODERATE = 15-20; CON, CONSIDERABLE = 30; EXC, EXCESSIVE = 60

[c] minutes per hour: MIN, MINIMUM = 5; MOD, MODERATE = 15; CON, CONSIDERABLE = 30; EXC, EXCESSIVE = 30-60

NA = Not Applicable

Table 2

Ratings of Educational Alternatives Within the Classroom for ADHD Children in Terms of Time Requirements for Implementation

(Continued)

	Training	Record Keeping	Implementation
Modification Techniques			
Zentall (1985)	NA	NA	NA
Cruikshank (1985)	NA	NA	NA
Levine & Jordan (1987)	NA	NA	NA
Parker (1988)	NA	NA	NA
McCarney (1989)	NA	NA	NA
Copeland & Love (1990)	NA	NA	NA
Braswell (1990)	NA	NA	NA

[a] in hours: MIN, MINIMUM = 1; MOD, MODERATE = 2; CON, CONSIDERABLE = 10; EXC, EXCESSIVE = 15

[b] minutes per hour: MIN, MINIMUM = 5; MOD, MODERATE = 15-20; CON, CONSIDERABLE = 30; EXC, EXCESSIVE = 60

[c] minutes per hour: MIN, MINIMUM = 5; MOD, MODERATE = 15; CON, CONSIDERABLE = 30; EXC, EXCESSIVE = 30-60

NA = Not Applicable

Table 2

Ratings of Educational Alternatives Within the Classroom for ADHD Children in Terms of Time Requirements for Implementation

(Continued)

	Training	Record Keeping	Implementation
Modification Techniques			
University of Minnesota (1991)	NA	NA	NA
Eisenber & Esser (in press)	NA	NA	NA

[a] in hours: MIN, MINIMUM = 1; MOD, MODERATE = 2; CON, CONSIDERABLE = 10; EXC, EXCESSIVE = 15

[b] minutes per hour: MIN, MINIMUM = 5; MOD, MODERATE = 15-20; CON, CONSIDERABLE = 30; EXC, EXCESSIVE = 60

[c] minutes per hour: MIN, MINIMUM = 5; MOD, MODERATE = 15; CON, CONSIDERABLE = 30; EXC, EXCESSIVE = 30-60

NA = Not Applicable

study. Therefore, these two time variables could not be rated.

What actually occurred during these sessions (materials, activities, resources, etc.) was not specified by the author, only that terminal objectives regarding teacher knowledge, awareness, and skills in managing hyperactive children increased as a result of their participation in this training.

Program Efficacy

Abikoff and Gittelman (1985) studied the effects of methylphenidate on the classroom behavior of ADHD children. With treatment, the ADHD children were found to be indistinguishable from their non-ADHD peers in measures of gross and minor motor movement, noncompliance, interference, and hyperactivity. Although other valuative measures were implemented, teacher participation in this study was limited to weekly calls regarding behavioral reports. Since time investment for participation in inservice training and program documentation were not requested of the teachers, evaluation of these two variables in terms of time investment is not applicable. The number of teaching minutes per day required of teachers to implement this program is zero, therefore, the descriptor of "minimal" time required was assigned to this treatment variable.

Cognitive behavioral therapy (CBT) as a treatment option

for ADHD children has been proven somewhat effective within the clinical setting. Kendall, Padawer, Zupan, and Braswell (1985) have developed a cognitive behavioral therapy for impulsive children. The training exercises to be used with impulsive children consist of 12 sessions lasting approximately 50 minutes in length. Children demonstrated their ability to exhibit targeted behaviors within the clinical setting. Evidence that this program can be effectively implemented in a classroom setting, however, has not been established. Therefore, the time criteria by which programs are evaluated for this review cannot be applied, and are reported as "not applicable."

Kirby and Grimley (1986) evaluated the effects of a cognitive behavioral training program specifically designed to facilitate durable and generalized improvements in the behavior and learning styles of ADD children 6-12 years of age. Twenty-three children participated in the study (16 students in the experimental group, 7 students in the control group). Results indicated that the experimental group was found to improve significantly on six of eight measures. These were the Conners' Teacher Rating Scale (hyperactivity), Self Control Rating Scale (teacher ratings), Conners' Parent Symptom Questionnaire (hyperactivity), Self Control Rating Scale (Parent ratings), Peabody Picture Individual Achievement Test, and the Freedom From Distractibility Test. Performances

of the experimental group did not significantly improve on the Matching Familiar Figures Test (Latency) and Matching Familiar Figures Test (Errors). Performance of the control group improved significantly on only one of the eight measures, the Matching Familiar Figures Test (Latency). These results encouraged the authors to believe that cognitive behavioral management can produce durable and generalizable behavioral changes in ADD children. However, the number of children involved in the experimental group was small (N = 13), and the variance within the groups was considered by the authors to be large.

As with other studies of program efficacy, the Kirby & Grimley research was conducted during the summer months in a clinical setting. CBT sessions consisted of 2-hour sessions 4 days a week for 7 weeks. Children were trained in small groups. Staff members were primarily doctoral students who received intensive training in cognitive behavioral therapy 2 hours a week for one full semester prior to the onset of this study.

Again, the time criteria by which programs are evaluated for this review cannot be applied to the Kirby and Grimley study, and are reported as "not applicable." If rated at this point, teachers defining the time descriptors would perceive this CBT treatment to be excessive in its time requirement for training (over 15 hours) and implementation (56 hours).

One of the first research teams to study self-monitoring of on-task behaviors was Kneedler and Hallahan (1981). Their studies have concluded that self-monitoring of on- and off-task behaviors resulted in increased on-task behaviors. The procedure took minimal amount of the teacher's time to implement (one 15-minute session the first day). Students monitored their own performance throughout the treatment. Consequently, this program is assigned the time descriptor "minimum" in the areas of teacher training, documentation, and implementation of self-monitoring technique during class time.

The ability of adolescents to self-monitor their on-task behaviors was investigated by Prater, Joy, Chilman, Temple, and Miller (1991). This study involved only five subjects, who were mostly observed within a special education classroom. Students were trained in the use of self-monitoring auditory and visual prompts. Total monitoring time ranged from 15-30 minutes daily. Classroom teachers were not participants in this study. Observations were recorded by graduate assistants. Results indicated that these five subjects could effectively improve their on-task behaviors, even in settings where classmates are on-task at a greater level than the subjects.

If this treatment were to be implemented within the classroom, "minimal" training would be required of teachers for the monitoring of auditory and visual prompts and program

implementation. The authors did not report documentation procedures involved in this project. Therefore, a time descriptor cannot be assigned to this area.

Gordon, Thomason, Cooper, and Ivers (1991) developed a classroom management technique based on a contingency management/response cost program. This program is essentially an electronic module called the "Attention Training System." Once a week for 13 consecutive weeks six students participated in this study (50 minute sessions). Each child demonstrated clear training effects. However, the effects faded after training. Also, replication of this study in a classroom setting has not as yet been reported. Implications as an educational treatment option for ADHD children cannot be made, and time descriptors are not applicable.

Rosen, O'Leary, Joyce, Conway, and Pfiffner (1984) examined the effects of both positive and negative consequences to influence the classroom behavior of hyperactive students. Results indicated that some level of mild negative consequences for inappropriate behaviors is an important factor in effective classroom management. Qualitatively different negative consequences may have differential effects on the behavior of hyperactive children. This study was conducted in a special education classroom with the participation of a teacher with several years' experience using behavioral techniques. At this point, the training

required for classroom teachers to replicate the management skills exhibited by the teacher in this study would be regarded as "excessive." Implementation of this treatment was continuous throughout the school morning (three hours) over an eight-week period. Time requirements for documentation and program implementation are also rated as "excessive."

Specific Instructional Modifications

Literature promoting instructional modification techniques exhibit a prescriptive approach to ADHD management in the classroom. These techniques are listed by the authors. Reliability and validation studies are not provided by the authors. Consequently, the procedure for evaluating time requirements is not applicable with this classification of articles and books.

Sidney Zentall (1985) conducted a review of earlier literature (before 1983) for elements which define the social context of ADHD within the classroom setting. Her review resulted in the identification of environmental and instructional factors which influenced the success of ADHD children in the classroom. Novelty in teacher presentation and individual assignments was one factor influencing increased attention to task. After adaptation to a new task or setting, hyperactivity in experimental groups was shown to increase over time. It was also suggested that more accurate

problem solving occurred in the morning and more behavior problems were observed in the afternoon for hyperactive children.

In a series of more recent studies, Zentall reported the effects of color attraction on academic performance of children exhibiting hyperactivity and impulsivity. Children with hyperactivity demonstrated more time on task, relative to controls, when nonrelevant color stimulation was combined with black stimuli during completion of the Matching Familiar Figures Test (Zentall & Dwyer, 1989). Children with attentional deficits performed better on tasks when relevant details were highlighted with color (Zentall & Kruczek, 1988 and Zentall, 1989). Teachers can facilitate an increase both time on task and academic performance of students with ADHD by highlighting important details during instructional presentations.

William Cruikshank (1985) addressed the educational implications for hyperactive children. The close relationship between psychological diagnosis and educational programming was emphasized. Five issues relating to the fit between psychological processing and educational technique were discussed. Included were issues of environmental structuring to reduce inessential stimuli.

Levine and Jordan (1987) presented the neurodevelopmental underpinnings of behaviors exhibited by hyperactive children.

Common classroom problems in reading, writing, math, and spelling were defined in terms of neurodevelopmental lags or dysfunctions. Remediation and compensatory skills were suggested along the theme that negative effects of learning disorders can be minimized while developmental assets are identified and exploited (page 43).

Harvey C. Parker (1988) developed The ADD Hyperactivity Workbook for Parents, Teachers, and Kids. Chapter six consists of tips for teachers and parents for successful education of children with Attention Deficit Disorder (ADD). These 14 pages begin with a descriptions of problematic behaviors exhibited by children diagnosed with ADD or ADHD within the classroom.

Various alternatives to treatment of the child with ADHD is then presented. Parker advocates a multimodal approach to treatment which may include medication, behavior therapy, and contingency management. Each of these approaches is described in detail with hypothetical cases and reproducible forms for implementation of the programs. A very complete -and manageable- system for monitoring medication effects is illustrated. Parker ends this chapter on educational considerations by providing specific suggestions to teachers regarding instructional techniques, classroom structure, classroom management, and the possibility of co-existing learning disabilities and/or conduct disorders in children

diagnosed with ADD.

Parker does not provide validation and reliability support from the research community for the programs delineated in his chapter. With such support this handbook could prove to be an invaluable tool for classroom teachers.

Stephen McCarney developed the Attention Deficit Disorders Intervention Manual (1989) as a strategy guide to accompany his ADHD evaluation scales. This manual presents a prescriptive approach to remediating problematic behaviors. Resembling an Individualized Education Plan (IEP), goals, objectives, and interventions are arranged in a cross-referenced format. Promoted separately, the domains of impulsivity, inattention, and hyperactivity are operationally defined in behavioral terms. Sixty behaviors are identified for the three domains, each followed by 1-3 goals for remediation. Up to 14 objectives are delineated for these goals. Many of these remediation objectives are repeated for several different goals. Finally, each objective is followed by 15-58 specific treatment interventions.

This ADD intervention manual fails to address some very critical issues with ADHD management in the classroom. One issue involves treatment of the disorder itself. A formal treatment plan for ADHD should form the skeletal framework for any intervention with children and families dealing with ADHD. Medication, behavior therapy, and contingency management are

three of the more researched treatment alternatives under which more specific intervention strategies (such as those prescribed by McCarney) could be included. The manual does acknowledge in its Introduction that use of additional forms of intervention may be necessary (McCarney, 1989, page 6). However, an ADD intervention manual written for classroom teachers should explicitly present the current status of all treatment options for ADD/ADHD, and in what contexts the specific strategies delineated in the manual would be effective.

Another issue not addressed by the ADD intervention manual is the cooperation of parents in remediating ADD behaviors that interfere with learning. It has already been demonstrated that home-based contingencies for school performance are very instrumental in the significant improvement of teacher ratings regarding conduct and hyperactive behaviors (O'Leary, Pelham, Rosenbaum, & Price, 1976 and Allyon, Garber, & Prisor, 1975). An ADD intervention manual written for classroom teachers should also include methods for involving parents in the implementation of the ADHD treatment plan.

Copeland and Love (1990) have published a comprehensive teacher's handbook on attention disorders. The manual is divided into these seven sections: Understanding, Treating, and Managing Attention Disorders, Identification and Goal

Setting, Medication, Classroom Management and Organization, and Resource Material. This guide includes checklists, feedback forms, and communication forms for teacher consumption. Especially valuable is the application of medication as one element in the treatment process. Specific guidelines for monitoring medication therapy are delineated.

Again, the lack of support validating any of the techniques recommended by the Copeland and Love handbook becomes an issue. The reliability of these suggested methods and procedures to effectively reduce the problematic behaviors exhibited by children with ADHD is also not provided.

The University of Minnesota published a guide to understanding and helping ADHD children in the school settings (Braswell, Bloomquist & Pederson, 1991). Three sections cover an overview of ADHD, identification of this disorder, and classroom interventions. Several methods for structuring the classroom environment included features of a lesson presentation, contingency management, compliance training, and school-home communication. General guidelines for implementing these approaches are presented.

This guide is a brief, 81-page publication. Each of the three sections is truly an "overview" of the topics addressed. Classroom teachers would not find this guide as serviceable as other guides reviewed in their pursuit of management techniques for students with ADHD.

Lauren Braswell (1990) has presented suggestions for classroom teachers of ADHD elementary school children. Her list of suggestions were compiled from correspondences of 450 teachers responding to an inquiry of methods found to be most useful with ADHD students. Validation studies for these techniqes, however, were not reported.

Also included in this list were methods based on current research such as self-monitoring and self-instruction. Studies supporting the efficacy of these two methods (Kneedler and Hallahan, 1981 & Prater et al., 1991) has been reported earlier in this review.

Eisenber & Esser (in press) have compiled an educator's handbook and resource guide which evidences a comprehensive approach towards the management of children with ADHD. Written for the classroom teacher, the handbook addresses all the concerns which confront teachers. As a resource guide theoretical dimensions of the disorder are presented: 1.) historical perspective, 2.) fact versus fiction regarding the disorder, 3.) characteristics and implications of the characteristics, and 4.) assessment procedures.

The resource guide advocates the establishment of an alliance team for the management of ADHD. Teachers, parents, the school nurse, an administrator, health care professional, physician, the child/adolescent with ADHD, and related service providers comprise the alliance team. Each members' role is

defined clearly, accompanied by necessary evaluation, monitoring, and communication forms.

As a handbook, the teacher's role as part of the alliance team is more specified. Issues in lesson preparation and procedures, classroom organization, student organization, adaptive materials, and academic modifications are examined, again accompanied by necessary evaluation, monitoring, and communication forms. Concerns regarding grades, homework, building self-esteem, educational laws, and the relation between ADHD and learning disabilities are also addressed. Finally, behavioral intervention strategies are presented, supported by suggestions for evaluation, monitoring, and communication.

Of all the prescriptive modifications for ADHD reviewed for this project, the Eisenberg and Esser handbook and resource guide appears to be the most complete "how to do" tool for those classroom teachers without formal training, struggling to help children with ADHD learn in their classrooms. As with the other publications reviewed, the authors fail to report validation and reliability studies for their program efficacy. What gives the Eisenberg and Esser manual more credibility is the fact that Eisenberg is both a private consultant/counselor for families dealing with ADHD issues and the parent of an adolescent with ADHD. Esser is both a classroom teacher within a private school for children

with ADHD and the parent of two children with ADHD. Perhaps for these reasons their manuscript appears to encompass every ADHD issue confronted by teachers in a thorough yet sensitive manner.

Conclusion

Attempts to respond to the question "What forms of teacher support for instructional methods, appropriate materials, and practical behavioral management techniques for dealing with ADHD children in the classroom are available to school systems?" resulted in the location of just 17 articles or books which specifically addressed educational programming issues for ADHD children. The plethora of ADHD literature appeared to address identification of the disorder and treatment within home and social contexts, as well as clinical settings outside the classroom.

Barkley's contention (1989) of non-maintenance and non-generalizable effects of treatment remains an issue. Validated treatment of academic and behavioral learning problems for ADHD children within the general education setting has not been documented. Validation of training programs targeting the development of management and instructional delivery skills for general education teachers has likewise lacked support.

Studies reporting the efficacy of a specific ADHD intervention have been evaluated by other authors. It has

been clearly evidenced that stimulant medication has been effective in reducing symptomology of the hyperactivity syndrome, at least in the short term (Weiss & Hechtman, 1986). The most consistent positive effect of stimulant medication is on that type of behavior described by teachers as disruptive and not socially appropriate (Cantwell, 1979). Combined interventions have been shown to increase the successful management of ADHD behaviors. The combination of contingency management training of parents and teachers with stimulant drug therapy was found to be generally better than the effects obtained when treatments were administered individually (Barkley, 1989).

In terms of teacher participation of pharmacological treatment of ADHD, guidelines from the research community are lacking. Barkley, Fischer, Newby, and Breen (1988) have developed a multimethod clinical protocol for assessment of stimulant drug response in ADHD children. Such protocol should be modified for teacher use and disseminated to the practitioners identified as the child's case coordinator. Extremely sensitive implications exist regarding the absence of standardized guidelines for the pharmacological management of ADHD children within the schools.

An evaluation of cognitive training (CT) was conducted by Abikoff and Gittelman (1985). Their findings challenged the efficacy of cognitive training, even when combined with

pharmacological treatment. Cognitive training was not shown to improve socially desirable behavior, academic functioning, and performance on rote learning, vigilance, and reasoning tests.

Following a recent review of cognitive training research Abikoff (1991) maintained the following conclusions. None of the studies reviewed confirm that cognitive training has evidenced generalizable clinical efficacy. None of the studies has generated results to indicate that CT is a competitor to stimulants, or that CT enhances their beneficial effects (page 208).

In terms of teacher participation in CT implementation, extensive training in behavioral management techniques is required. Validated training procedures for general education teachers has not been documented. When CBM training becomes available to general education teachers, the time required for CBM training and program implementation will become an issue.

Self-training research (Gordon et al, 1991; Prater et al., 1991; and Kneedler & Hallahan, 1981) has proven this treatment to be efficacious to students individually trained within clinical settings. These studies have yet to be replicated in the general education setting.

Research investigating the effects of teacher administered positive and negative reinforcement (Rosen et al., 1984) have yielded positive results. This is a technique

available to teachers with minimal behavioral training. However, validated training programs have not been documented by the research community.

ADHD literature promoting specific classroom modifications to remediate problematic behaviors are making their appearances. Very recent publications presenting prescriptive techniques are available to the consumer (McCarney, 1989; Copeland & Love, 1990; and Braswell, Bloomquist, & Pederson, 1991). However, not one of these products have included validity and reliability support for their product's efficacy. Teachers, however, are expected to welcome these publications for two reasons. Prescriptive techniques with self-instructional guidelines for implementation are readily available. Teachers can provide remediation for their ADHD students now, with minimum demands on their own time for training and program delivery.

With the recent clarification of ADHD eligibility for individualized educational programming within the general or special education classroom, school districts are burdened with the tremendous task of securing services for these children. Because validation studies regarding the effectiveness within the general classroom setting of any of the educational alternatives reviewed here do not exist, little empirical data promoting educational alternatives for ADHD children is available for classroom teachers. An appeal

to researchers, national authors, and practitioners charged with the diagnosis and treatment of ADHD children to adhere to the impending DSM-IV criteria must be generated by politicosocial groups. A consensus on the ADHD definition and differential diagnosis will lead to standardized diagnostic procedures. Standardized diagnostic procedures will enable the identification of pure ADHD samples for empirical study. Consequently, researchers can concentrate their efforts toward the generation and validation of treatment alternatives for home and school environments.

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